Small Business Innovation Research/Small Business Tech Transfer

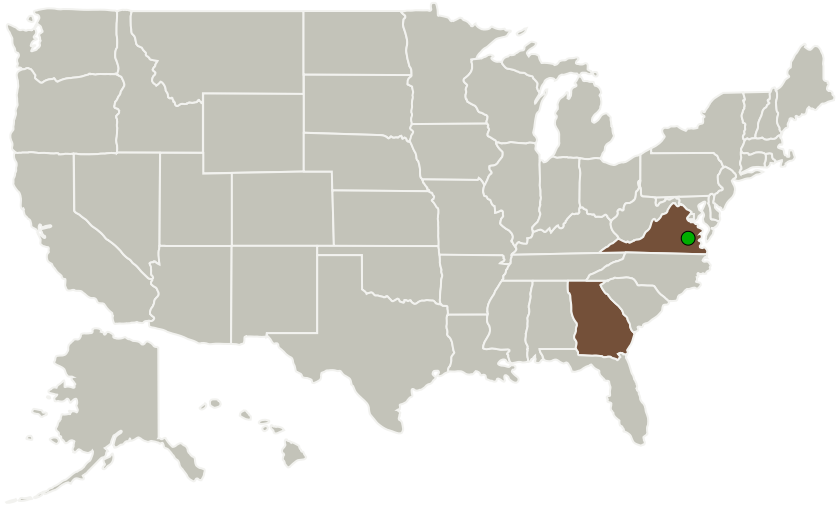
Low-Cost Small Payload Return to Enable High Frequency ISS Research, Phase I

Completed Technology Project (2014 - 2014)

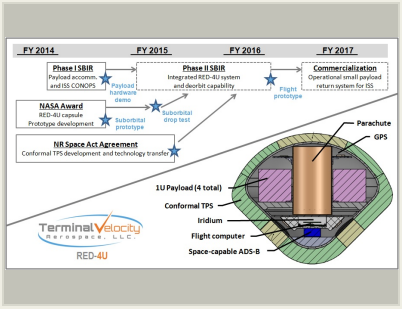
Project Introduction

Terminal Velocity Aerospace, LLC (TVA) proposes to improve utilization of the International Space Station (ISS) by providing a system for on-demand return of experiment samples to Earth. TVA is presently developing a small reentry device (RED) capable of returning small payloads from space, with initial prototype development funded by a separate contract. The device, named RED-4U, is sized to accommodate a payload mass and volume equivalent to four CubeSats, commonly referred to as units or "U." The payload accommodations and concept of operations for RED-4U are currently generically defined, but are readily suitable to the ISS small payload return mission. In the proposed Phase I R&D effort, TVA proposes to (1) design, fabricate, and demonstrate RED-4U payload accommodations specifically for high-frequency sample return from ISS; and (2) detail the concept of operations for RED-4U use on ISS.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Terminal Velocity Aerospace, LLC	Lead Organization	Industry	Atlanta, Georgia
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



Low-Cost Small Payload Return to Enable High Frequency ISS Research Project Image

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Primary U.S. Work Locations	
Georgia	Virginia

Project Transitions

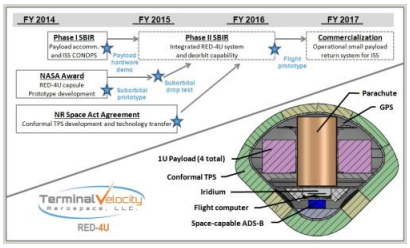
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140729)*

Images



Project Image
Low-Cost Small Payload Return to Enable High Frequency ISS Research Project Image *(https://techport.nasa.gov/image/125745)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Terminal Velocity Aerospace, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

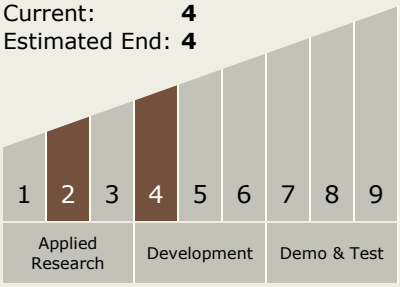
Carlos Torrez

Principal Investigator:

Dominic Depasquale

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.2 Descent
    - TX09.2.1 Aerodynamic Decelerators

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System